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Research & Development

MARCH 1987

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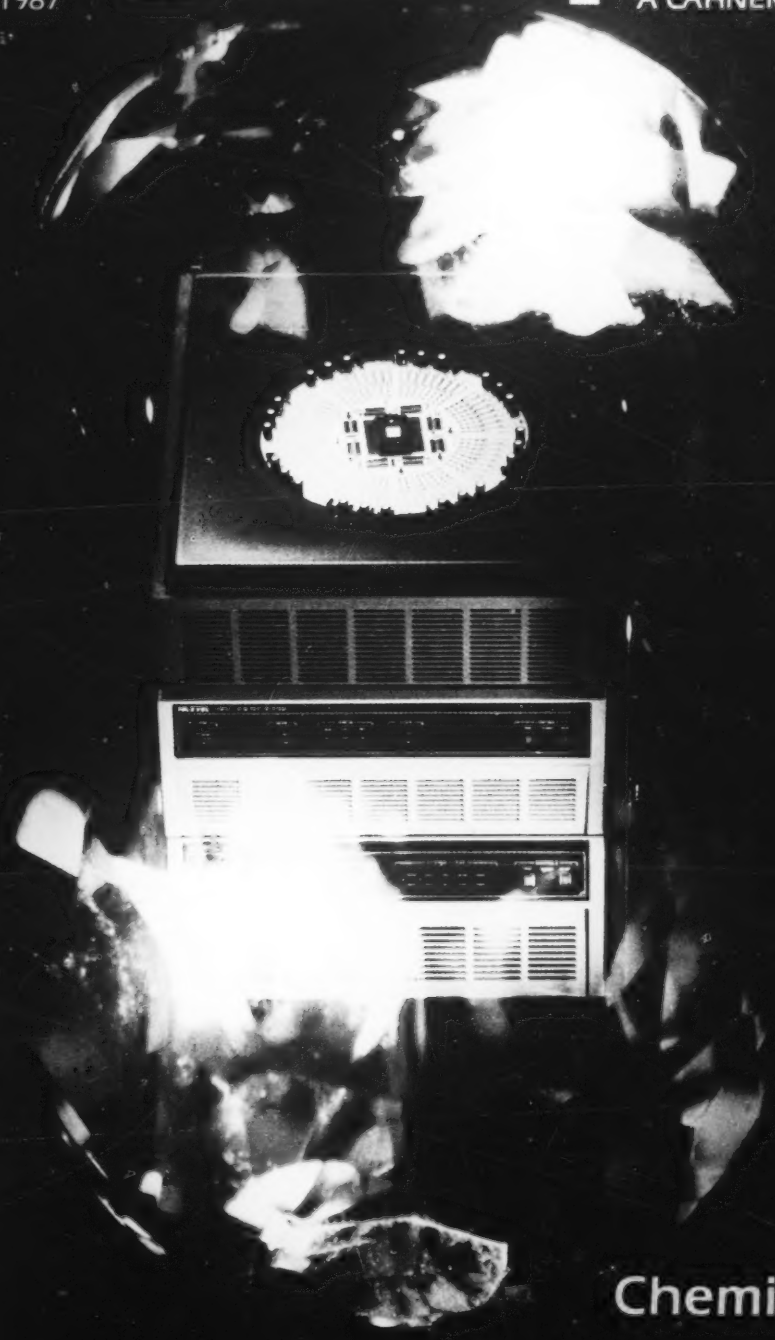

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Research & Development

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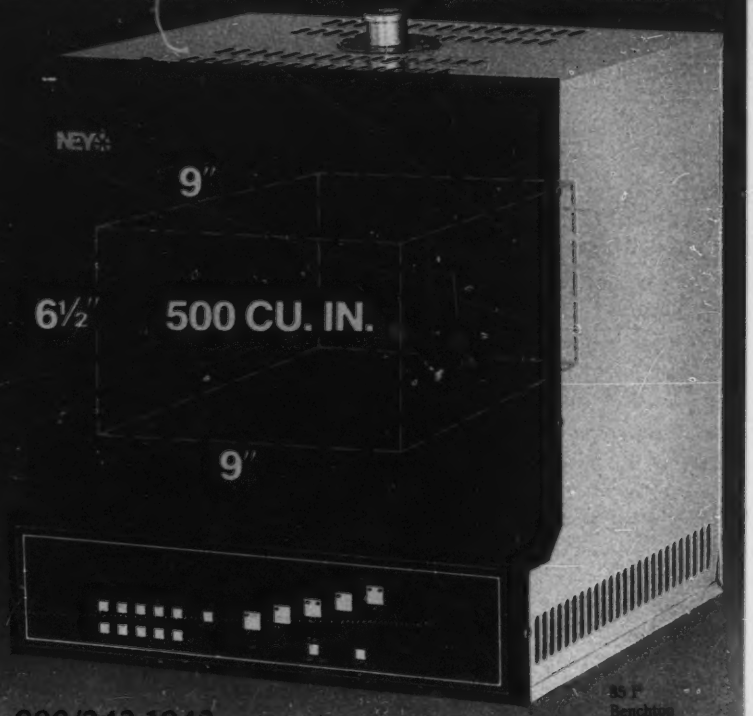

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CIRCLE 101 ON INQUIRY CARD

Salaries are up for workers in R&D in year of changes

Lower inflation rate in U.S. helps scientists and engineers to make real gains in period of small raises; early retirement programs lop off high end of work force and set new directions for long-established industry trends.

Robert R. Jones, Editor

HOW MUCH MONEY are other scientists and engineers your age, with equal experience and education, earning in research and development? How much salary trade-off do you have to accept to get university ambience? What is the salary penalty in research, development, and quality assurance for being female?

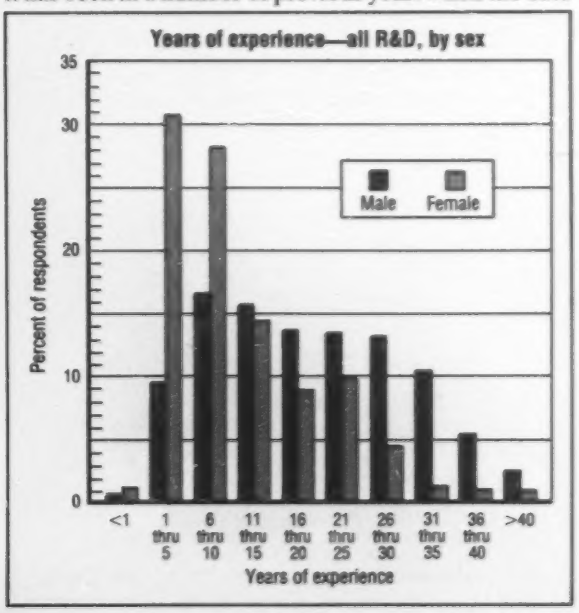
If you want answers to these and other questions that you may have about people who work in research, development, and quality assurance, then read on. You'll find your answers in this annual *Research & Development* magazine profile of the R&D industry. To the extent that nearly 3,500 respondents can be representative of R&D and QA, these data speak for the industry.

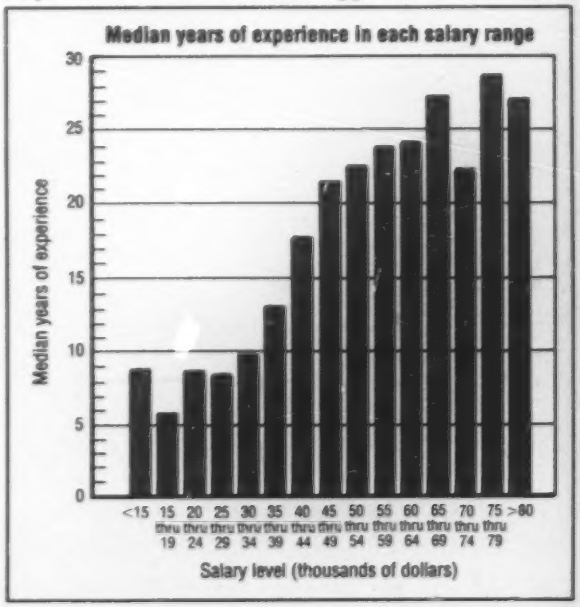
This year's profile is presented in one part, unlike it has been in a number of previous years when the data for the total industry and for individual disciplines were presented in March, and figures for age, experience, workplace, and sex were presented in May.

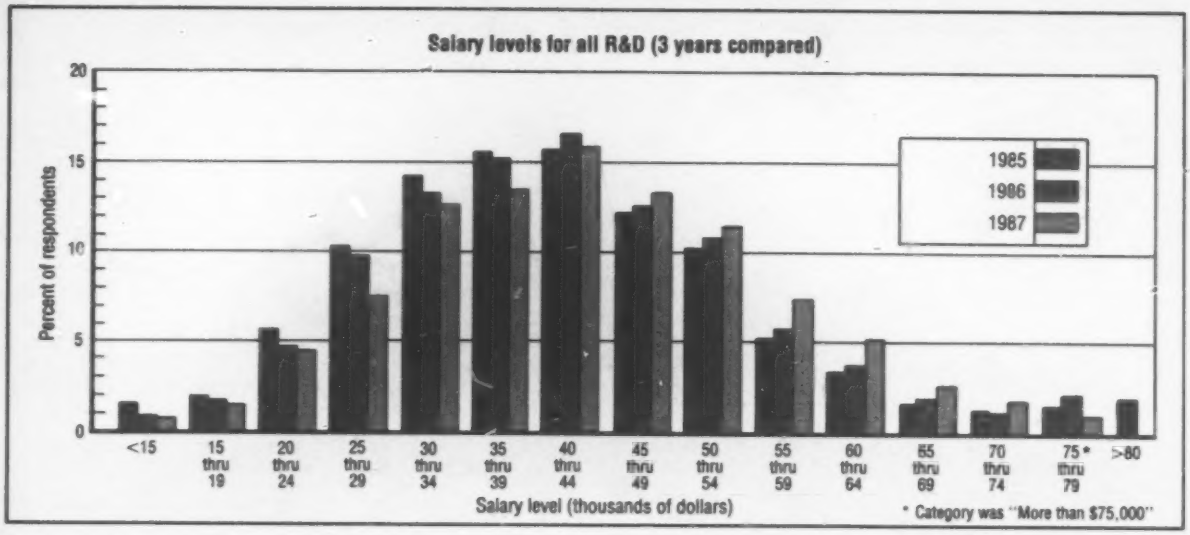
As was mentioned in two previous reports, we made a change in this annual study three years ago, and that change temporarily reduced the comparisons that we could make.

This industry study, which originally was simply a salary survey, was established in years when the top income that could be expected for an R&D scientist or engineer was below $50,000. When we asked readers about their salaries, the possible answers spanned $3,000 increments—$16,000 through $18,000, $19,000 through $21,000, etc. That was quite satisfactory at that time.

As time passed, the lower end of the salary range stayed about the same, but the upper end moved stead-







ily away from it and we added spans in the questionnaire to keep up with it. As a result, our charts in which we presented the data became hopelessly cluttered.

To reduce the clutter, we changed the spans to $5,000 in our study of three years ago, knowing that we would have to forego some meaningful comparisons for several years. Now those years have passed, and we once again can present a chart which shows a 3-year comparison (this year and the two previous) of salary levels for all R&D workers.

As mentioned above, the lower end of the salary range for R&D workers has hardly changed over the years of this study. Now, it appears that change may be occurring at the lower end. Two years ago 1.6% of respondents were in the lowest salary group. Last year it was 0.9%. This year 0.8% report that they are earning less than $15,000 per year.

The upper span on the questionnaire was changed this year to be "$80,000 per year or more." Some 1.8% of respondents are in that new span.

With one out of every 56 R&D workers now earning more than $80,000 per year, it is hard to believe that the upper end of our survey just seven years ago was "$46,000 or more." At that time, the largest single group of the respondents and the median income for all R&D fell into the $25,000 through $27,000 span.

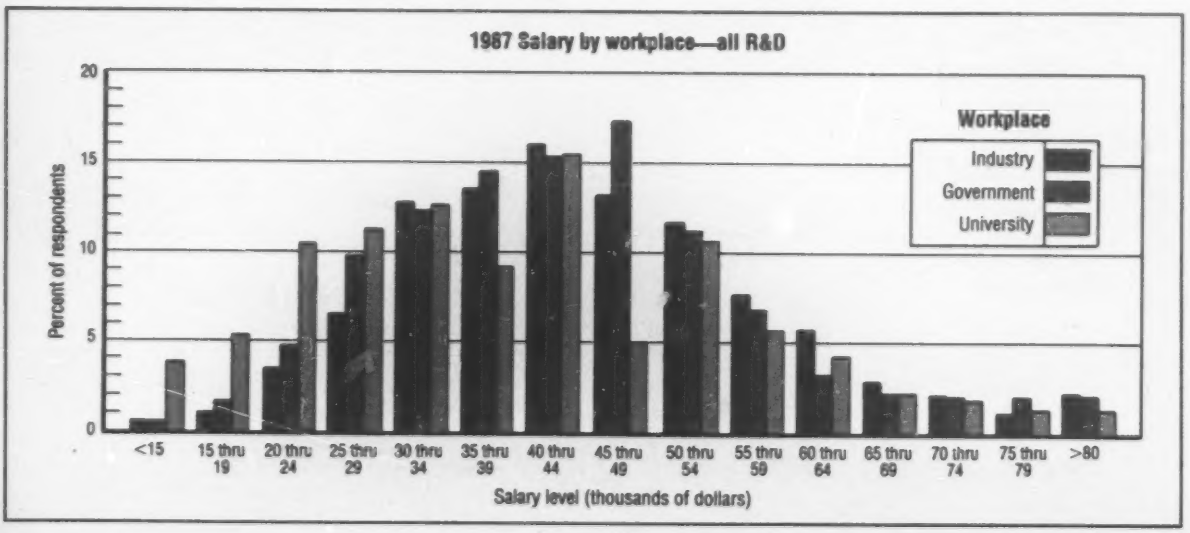
Salary increases are down this year, particularly for men, but also down for women, as we will discuss below. Fortunately we continue to enjoy low inflation, and one result is a substantial increase in income in relation to purchasing power. Increases in the rate of pay for all R&D are reflected in this table.

Increases in rate of pay*

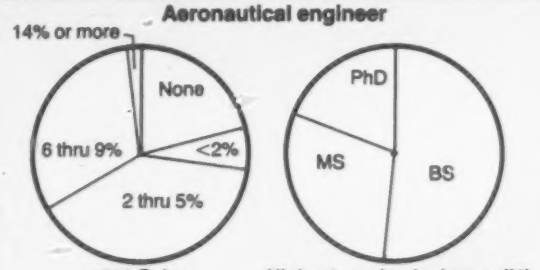
Amount	1987	1986	1985	1984	1983	1982
	% of respondents					
None	16.5	11.3	9.3	16.3	14.7	6.3
Less than 2%	4.3	3.6	2.9	2.1	1.9	1.2
2 through 5%	39.2	37.1	36.6	26.9	15.9	10.6
6 through 9%	30.8	36.3	37.6	38.9	34.2	34.5
10 through 13%	6.0	8.3	10.1	11.5	25.1	34.0
14% or more	3.2	3.3	3.6	4.4	8.3	13.3
Ahead of inflation	79.2	60.1	63.3	54.8	33.4	47.3

*Granted in preceding year for year shown

It is interesting to see how lower inflation has affected the question of salary increases. In the above ta-



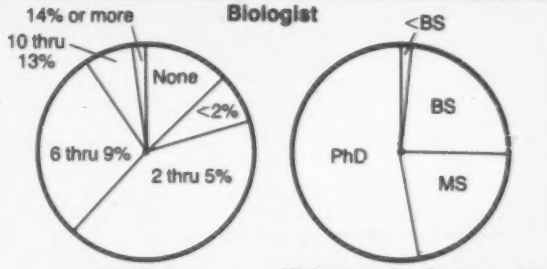
Aeronautical engineer



1986 Raise — Highest academic degree (%)

1986 salary range:	<$15,000 = 0.0% >$80,000 = 2.0%	Median $50,278
Years with present employer:	< 1 yr = 2.0% > 36 yr = 2.0%	Median 13.0 yr
Age of respondents:	<26 yr = 2.0% >65 yr = 10.2%	Median 51.25 yr
Years of experience:	< 1 yr = 0.0% >40 yr = 10.2%	Median 23.56 yr

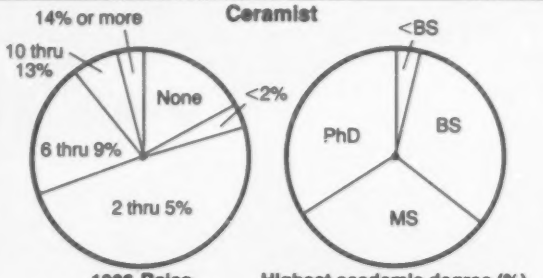
Biologist



1986 Raise — Highest academic degree (%)

1986 salary range:	<$15,000 = 0.6% >$80,000 = 1.7%	Median $38,100
Years with present employer:	< 1 yr = 2.8% > 36 yr = 0.6%	Median 8.54 yr
Age of respondents:	<26 yr = 2.2% >65 yr = 0.6%	Median 41.11 yr
Years of experience:	< 1 yr = 0.0% >40 yr = 1.1%	Median 14.47 yr

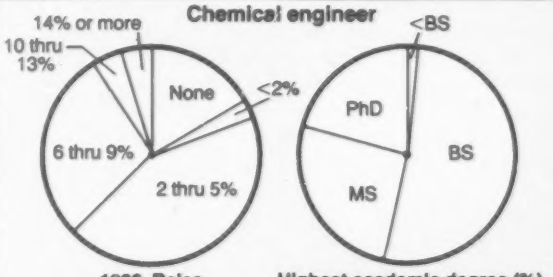
Ceramist



1986 Raise — Highest academic degree (%)

1986 salary range:	<$15,000 = 1.8% >$80,000 = 0.0%	Median $47,812
Years with present employer:	< 1 yr = 1.8% > 36 yr = 0.0%	Median 8.0 yr
Age of respondents:	<26 yr = 1.8% >65 yr = 0.0%	Median 40.27 yr
Years of experience:	< 1 yr = 0.0% >40 yr = 0.0%	Median 16.89 yr

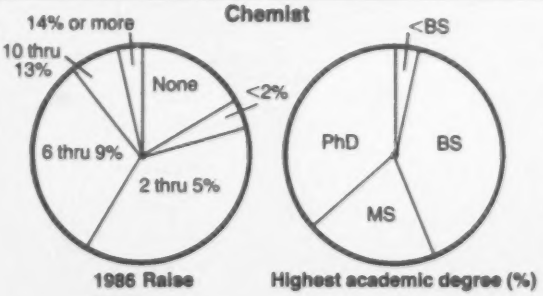
Chemical engineer



1986 Raise — Highest academic degree (%)

1986 salary range:	<$15,000 = 1.7% >$80,000 = 1.7%	Median $45,865
Years with present employer:	< 1 yr = 3.1% > 36 yr = 2.4%	Median 9.38 yr
Age of respondents:	<26 yr = 6.8% >65 yr = 2.0%	Median 41.31 yr
Years of experience:	< 1 yr = 0.3% >40 yr = 2.4%	Median 16.04 yr

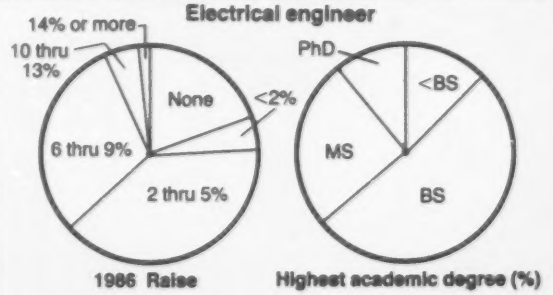
Chemist



1986 Raise — Highest academic degree (%)

1986 salary range:	<$15,000 = 0.8% >$80,000 = 1.5%	Median $41,860
Years with present employer:	< 1 yr = 2.9% > 36 yr = 1.1%	Median 9.46 yr
Age of respondents:	<26 yr = 1.9% >65 yr = 1.1%	Median 41.88 yr
Years of experience:	< 1 yr = 0.4% >40 yr = 1.2%	Median 16.23 yr

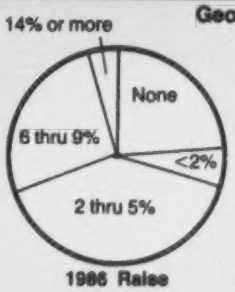
Electrical engineer



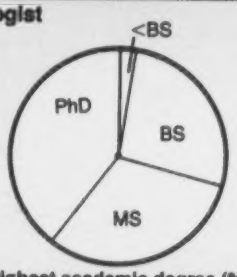
1986 Raise — Highest academic degree (%)

1986 salary range:	<$15,000 = 0.9% >$80,000 = 2.0%	Median $44,308
Years with present employer:	< 1 yr = 4.0% > 36 yr = 1.4%	Median 9.75 yr
Age of respondents:	<26 yr = 2.6% >65 yr = 2.0%	Median 44.58 yr
Years of experience:	< 1 yr = 0.6% >40 yr = 3.2%	Median 20.66 yr

Geologist



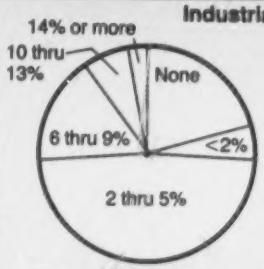
1986 Raise



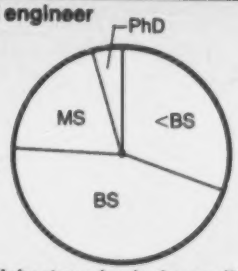
Highest academic degree (%)

1986 salary range:	<$15,000 = 0.0% >$80,000 = 2.6%	Median $45,714
Years with present employer:	< 1 yr = 0.0% > 36 yr = 2.6%	Median 12.5 yr
Age of respondents:	<26 yr = 0.0% >65 yr = 0.0%	Median 47.17 yr
Years of experience:	< 1 yr = 0.0% >40 yr = 2.6%	Median 22.17 yr

Industrial engineer



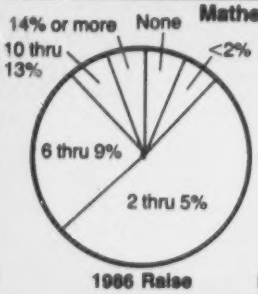
1986 Raise



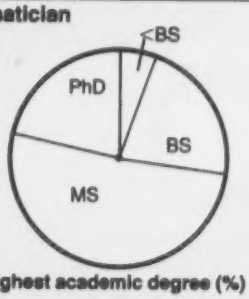
Highest academic degree (%)

1986 salary range:	<$15,000 = 2.4% >$80,000 = 2.4%	Median $38,889
Years with present employer:	< 1 yr = 2.4% > 36 yr = 0.0%	Median 8.64 yr
Age of respondents:	<26 yr = 0.0% >65 yr = 0.0%	Median 42.17 yr
Years of experience:	< 1 yr = 0.0% >40 yr = 0.0%	Median 18.0 yr

Mathematician



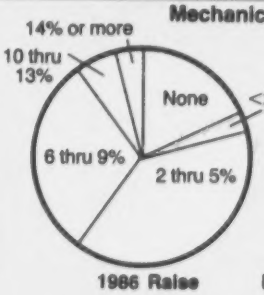
1986 Raise



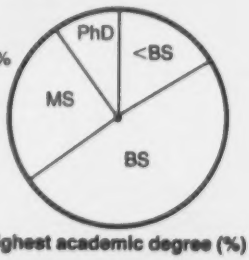
Highest academic degree (%)

1986 salary range:	<$15,000 = 0.0% >$80,000 = 5.3%	Median $46,250
Years with present employer:	< 1 yr = 0.0% > 36 yr = 0.0%	Median 9.12 yr
Age of respondents:	<26 yr = 0.0% >65 yr = 0.0%	Median 49.0 yr
Years of experience:	< 1 yr = 0.0% >40 yr = 0.0%	Median 21.75 yr

Mechanical engineer



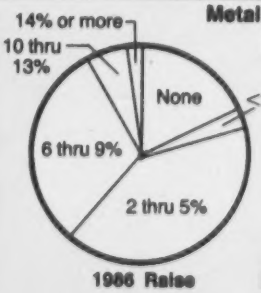
1986 Raise



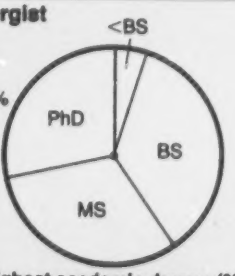
Highest academic degree (%)

1986 salary range:	<$15,000 = 0.2% >$80,000 = 2.0%	Median $44,385
Years with present employer:	< 1 yr = 2.5% > 36 yr = 1.7%	Median 9.45 yr
Age of respondents:	<26 yr = 1.7% >65 yr = 1.7%	Median 45.45 yr
Years of experience:	< 1 yr = 0.5% >40 yr = 4.0%	Median 20.30 yr

Metallurgist



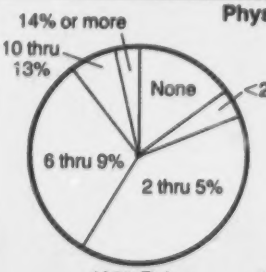
1986 Raise



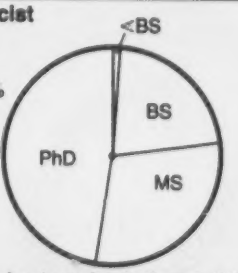
Highest academic degree (%)

1986 salary range:	<$15,000 = 0.0% >$80,000 = 1.8%	Median $46,625
Years with present employer:	< 1 yr = 1.8% > 36 yr = 1.2%	Median 9.08 yr
Age of respondents:	<26 yr = 1.8% >65 yr = 0.6%	Median 43.18 yr
Years of experience:	< 1 yr = 0.0% >40 yr = 1.2%	Median 18.56 yr

Physicist

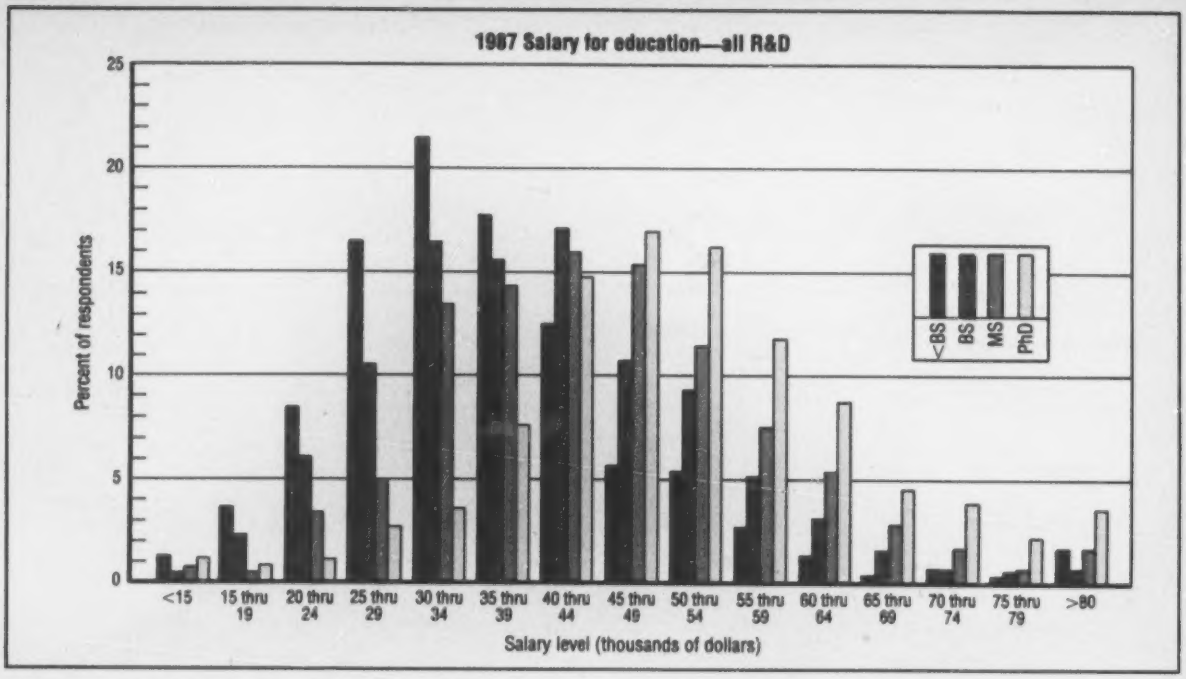


1986 Raise



Highest academic degree (%)

1986 salary range:	<$15,000 = 0.7% >$80,000 = 4.1%	Median $48,431
Years with present employer:	< 1 yr = 3.7% > 36 yr = 1.0%	Median 8.60 yr
Age of respondents:	<26 yr = 1.4% >65 yr = 1.7%	Median 43.45 yr
Years of experience:	< 1 yr = 0.7% >40 yr = 2.4%	Median 18.18 yr



ble we see that in the years of 1982 and 1983, 34% of the respondents received salary increases of 6 through 9%, more than 25% received increases of 10 through 13%, and more than 8% got increases of 14% or more.

Despite those hefty increases in income, fewer than half of the respondents stayed ahead of inflation.

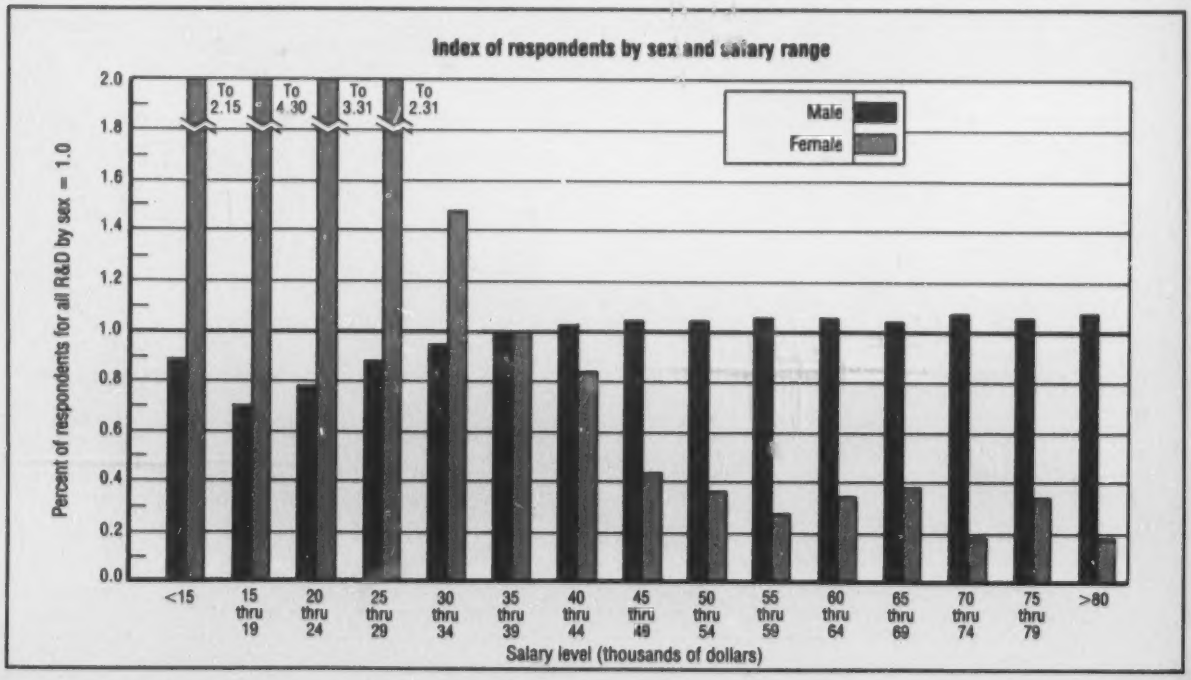
Look at the shift in the figures in the column for 1987; 16.5% got no raise at all! Only 9.2% got more than 9%. Yet 4 out of 5 respondents came out ahead of inflation.

The number receiving no increase at all is up for the second year in a row to the highest level in 6 years. We should remember, of course, that the no-increase group includes a number of new-hires.

The most impressive salary increase by discipline this year was made by the chemists, with 42.3% getting increases of 6% or more per year. Chemists displace ceramists who were in the first position in the two previous years.

Physicists follow the chemists closely with 41.9% getting increases of 6% or more per year. Then come mechanical engineers with 40.1% and biologists with 39.5% getting raises of 6% or more.

Industrial engineers got the short end of the stick this year with only 26.2% receiving raises of 6% or more. They displaced the aeronautical engineers who



were at the bottom last year.

We have pointed in several recent reports to changes which apparently are a result of corporate programs to encourage early retirement of top-level employes. These early retirement programs change the relationships in our tables in ways that we had not seen or anticipated in the past. One consequence of the early retirement programs is larger than usual shifts in the relative positions of median incomes by disciplines.

This may help to explain how, despite being at the bottom for salary increases last year and having a low gain in median salary this year, aeronautical engineers are at the top of the list for median salaries.

Rankings for disciplines by median salaries

Rank 1987	Rank 1986	Discipline	Median salary 1987	Median salary 1986	% increase
1	2	Aero. Engr.	$50,278	$48,181	4.4
2	3	Physicist	48,431	47,426	2.1
3	5	Ceramist	47,812	44,285	7.9
4	1	Metallurgist	46,625	49,166	−5.2
5	6	Mathematician	46,250	44,166	4.7
6	4	Chem. Engr.	45,865	44,619	2.8
7	9	Geologist	45,714	41,136	11.1
8	8	Mech. Engr.	44,385	41,901	5.9
9	7	Elec. Engr.	44,308	43,291	2.4
10	10	Chemist	41,860	40,285	3.9
11	12	Indust. Engr.	36,889	36,666	6.1
12	11	Biologist	38,100	37,013	2.9

The median salary for all respondents in this study is $43,224, up 4.3% from last year's $41,449. (Please note that last year's industry profile was presented in two parts, as mentioned above. The 1986 median salary for all R&D was stated correctly in the March issue, but suffered from a computer glitch and was incorrectly stated in the May issue.)

With only the metallurgists losing ground in median salary in this years's report, and with most disciplines making healthy gains, workers in research, development, and quality assurance exhibit an attractive demographic profile. This group will draw a paycheck in 1987 exceeding $25.9 billion, a figure that is up from last year's $24.5 billion by 5.7%, and that 5.7% is substantially more than last year's inflation.

This affluence can be compared to an annual paycheck for R&D and QA of $18.9 billion just 3 years ago.

The premiums that we have mentioned in previous years for age, experience, and advanced degrees continue this year, and may help to explain why this industry has an impressive record of experience and education.

Premium for experience

In recent years the median age of respondents has moved upward from 40.4 in 1980 to 42.6 this year. Median years of experience of our respondents has increased from 15.8 in 1982 to 17.4 this year. (This is difficult to explain in the light of other changes which seem to be caused by early retirement programs.)

The premium that is paid for experience shows up clearly when salary is related to experience as reported in this study. For this year's respondents with less than one year's experience, the median income was

1987 R&D Industry profile:

1. What is your annual salary?
   - a. Less than $15,000 ..... 0.8%
   - b. $15,000 to $19,999 ..... 1.5
   - c. $20,000 to $24,999 ..... 4.3
   - d. $25,000 to $29,999 ..... 7.5
   - e. $30,000 to $34,999 ..... 12.6
   - f. $35,000 to $39,999 ..... 13.2
   - g. $40,000 to $44,999 ..... 15.8
   - h. $45,000 to $49,999 ..... 13.1
   - i. $50,000 to $54,999 ..... 11.4
   - j. $55,000 to $59,999 ..... 7.4
   - k. $60,000 to $64,999 ..... 5.1
   - m. $65,000 to $69,999 ..... 2.6
   - n. $70,000 to $74,999 ..... 1.8
   - o. $75,000 to $79,999 ..... 1.0
   - p. $80,000 or more 1.8

2. Your raise during the past year was
   - a. None 16.5%
   - b. Less than 2% 4.3
   - c. 2% through 5% 39.2
   - d. 6% through 9% 30.8
   - e. 10% through 13% 6.0
   - f. 14% or more 3.2

3. How long have you worked for your present employer?
   - a. Less than 1 year 3.0%
   - b. 1 through 3 years 17.3
   - c. 4 through 6 years 16.9
   - d. 7 through 9 years 14.0
   - e. 10 through 12 years 9.0
   - f. 13 through 15 years 6.8
   - g. 16 through 18 years 8.0
   - h. 19 through 21 years 6.5
   - i. 22 through 24 years 5.6
   - j. 25 through 27 years 4.1
   - k. 28 through 30 years 3.4
   - m. 31 through 33 years 2.6
   - n. 34 through 36 years 1.3
   - o. More than 36 years 1.3

4. What is your age?
   - a. Under 26 years 2.4%
   - b. 26 through 30 ..... 10.3
   - c. 31 through 35 ..... 15.4
   - d. 36 through 40 ..... 15.5
   - e. 41 through 45 ..... 14.9
   - f. 46 through 50 ..... 12.8
   - g. 51 through 55 ..... 12.2
   - h. 56 through 60 ..... 9.5
   - i. 61 through 65 ..... 5.7
   - j. More than 65 years 1.4

5. How many years of experience do you have?
   - a. Less than one year 0.4%
   - b. 1 through 5 years 11.1
   - c. 6 through 10 years 17.9
   - d. 11 through 15 years 15.4
   - e. 16 through 20 years 13.4
   - f. 21 through 25 years 13.3
   - g. 26 through 30 years 12.3
   - h. 31 through 35 years 9.3
   - i. 36 through 40 years 4.8
   - j. More than 40 years 2.0

6. What is the highest degree you hold?
   - a. Less than bachelor 8.6%
   - b. Bachelor 39.4
   - c. Master 24.0
   - d. Doctorate 28.0

7. What is your profession?
   - a. Chemist 35.0%
   - b. Chemical engineer 8.4
   - c. Mechanical engineer ... 12.5
   - d. Electrical engineer 10.0
   - e. Aeronautical engineer .. 1.4
   - f. Industrial engineer 1.2
   - g. Physicist 8.4
   - h. Metallurgist 4.7
   - i. Biologist 5.2
   - j. Mathematician 0.5
   - k. Ceramist 1.6
   - m. Geologist 1.1
   - n. Other 10.9

8. Do you work in
   - a. Industry 76.6%
   - b. Government 14.2
   - c. University 9.2

9. Are you
   - a. Male 91.7%
   - b. Female 7.2

$27,917. (This is up from $24,375 last year.) For the respondents with 1 through 5 years of experience, the median income is $31,775. For 6 through 10 years' experience, income rises to a median of $36,455.

At the upper end of the scale, those with 36 through 40 years' experience have a median income of $49,773, up from $48,321 last year.

Premium for education

The percentage of respondents having PhDs appears to be one place where the early retirement programs are affecting our results. The percentage with PhDs increased from 27.6 in 1980 to 33.1 in 1985. Last year it was 30.1 and this year the percentage is 28.0, down 7%! One suspects that the top end of the 1985 work force is gone.

Biologists continue to lead the field with the most respondents having PhDs at 52%, down from 54.1% last year. When masters and doctors are considered together and disciplines are ranked for advanced degrees, physicists are in first place with 78.8% having advanced degrees. Biologists are second with 74.3% and mathematicians are a close third at 73.7%.

The declines in numbers notwithstanding, for the typical worker in research, development, and quality assurance, the monetary reward for having a PhD is substantial. Indications from this year's respondents are that there is a career advantage of $1,703,000 for the person having a PhD when compared to a colleague whose formal training stopped at the baccalaureate level.

It is obvious from responses to this survey that the net value of a PhD over a BS depends on an individual's subject matter field, sex, and workplace (government, university, or industry). And, inasmuch as median figures are used to calculate the premiums for education, it is obvious that many individuals with PhDs will reap much larger benefits from their advanced degrees than we show here.

Since 6.8% of our respondents still are on the job after 35 years' experience, we are projecting 35-year careers in this calculation. The $1,703,000 premium for education is what remains from 35 years' income at the higher median income level of PhDs after we adjust for interest earned and deduct for the costs of added tuition and the additional years spent getting the advanced degree rather than earning income from full-time work.

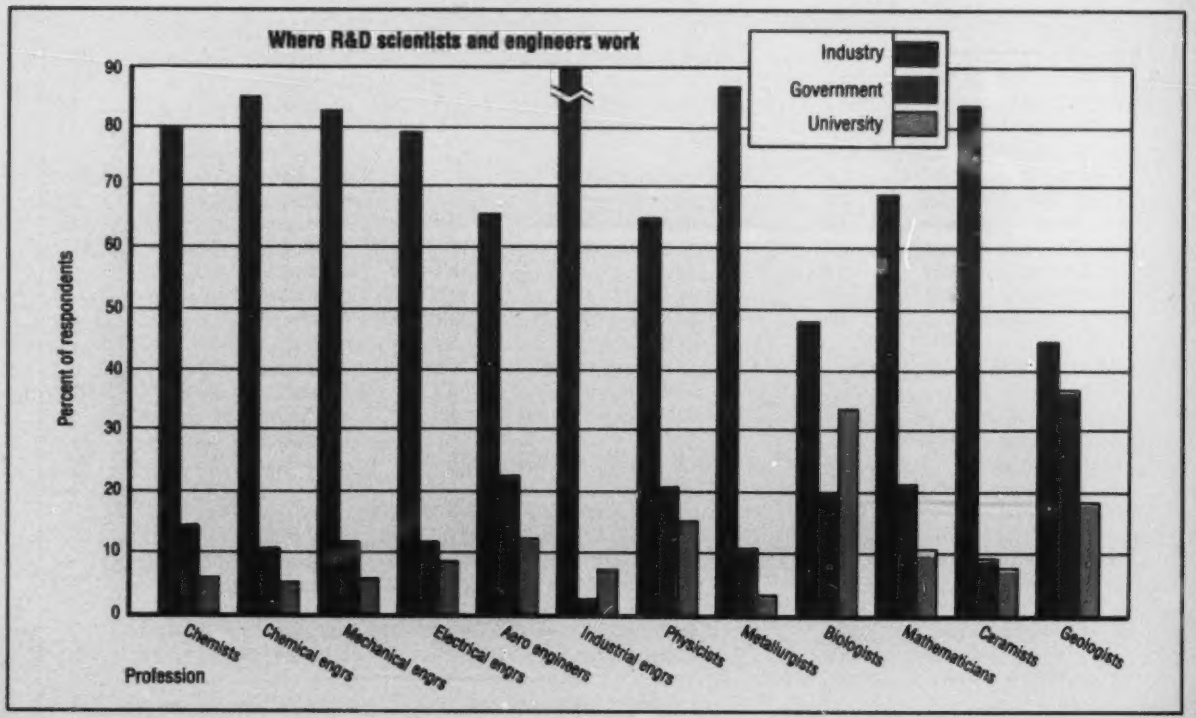
Using similar calculations with different allowances for earning years and expenses, we find that the present career value of a PhD over an MS is $1,000,000, give or take small change.

For the high school senior who is wondering about the value of college, the message should be clear. The net career benefit for BS over less-than-BS is more than three quarters of a million dollars ($778,000, in our calculations). And that comparison is being made to the median income of a non-BS worker in research and development, not to the stoop laborer or the chronically unemployed.

On this basis, the person who spends the four years necessary to get the BS can feel that he or she earns $194,000 per year while in college, and that doesn't even consider the other benefits that accompany a college degree.

Assume you already have a BS. What is it worth to go on for an MS? The answer is $703,000 over the years of a career, or the equivalent of $20,000 each working year.

At the extremes, the career benefit of a PhD over less-than-BS during a PhD's 35-year career is $2,480,000, or an added $70,800 per year when interest is included. The yearly difference in income for PhD over less-than-BS is $15,748, up 5% from last year's



$14,250. With interest accumulated over a 35-year career, the difference is $2.5 million.

Other comparisons and conclusions can be drawn from our survey information about salaries in relation to highest academic degree, as you will see in this table:

R&D salaries compared by academic degrees

Degree	Median salary 1987	Median salary 1986	Percent change	Annual difference* 1987	Annual difference* 1986	Difference increase (percent)
Doctorate	$50,396	$45,050	11.8	$6,449	$5,020	28.5
Master	43,947	40,030	9.8	4,313	4,970	−13.2
Bachelor	39,634	35,060	13.0	4,986	5,010	−0.5
<Bachelor	34,648	30,050	15.3			

*Difference above next lower degree

We mentioned earlier that these career benefit figures are based on medians, and that many PhDs will earn substantially more than the figures presented here. However, there are many who will earn less than these figures, and the vast majority of those are women.

Over the years since we began breaking out this industry profile data by sex, we have confirmed what many already believed: Women in R&D and QA get substantially less for the same work than men do.

Having said that, we must hasten to add that for many reasons women in these fields do not have the opportunities to become as well qualified as men do. The problem of women's low salaries in this industry has two parts, of which sex discrimination is just one.

The other part consists of the many reasons that women often do not have the same amount of experience, as much time with the present employer, or as much education as men do. The result is that, with few exceptions, the big salaries in R&D go to men with PhDs and substantial work experience.

It hardly is surprising, then, that the typical male R&D worker in industry is earning a median annual income of $44,636 compared to the female working in a university where her salary would be near $24,300.

So great is the difference by sex and workplace that it deserves special attention. To begin with, since industry passed government a few years ago as the top-paying workplace for R&D, the ranking in declining order of salary size has been industry, government, university.

Median salaries all R&D by workplace

	1980	1985	1987
Government	$29,733	$39,790	$42,200
Industry	28,354	40,980	43,877
University	25,685	34,950	38,621

Universities often have a high proportion of women working in R&D, a salary downer, but one might expect to see some buoyancy provided in the university salary levels by the fact that they also have a high proportion of PhDs. However, the latter does not counterbalance the former, and universities lag well behind industry and government in pay scales.

What is more, the discrimination and opportunity differences are so greatly tipped in favor of men, that the median annual salary for men in *universities* is $6,084 more than for women in *industry*, an increase in spread of more than 20% in the past year.

Women R&D workers in universities are no better off this year than last, in terms of median salary, while men in universities have improved their lot by $5,000, a 50% increase in the spread for men and women in universities.

Here are the figures; see for yourself:

R & D salaries compared by sex and workplace

	1987	1986	% gain
Men in industry	$44,636	$40,050	11.4
Men in government	43,239	40,040	8.0
Men in universities	40,521	35,040	15.6
Women in industry	34,437	30,070	14.5
Women in government	30,000	30,040	−0.1
Women in universities	24,318	25,100	−3.1

In this year's survey, the median annual salary for all males in R&D and QA is $44,061, up almost $6,000 in two years. The median for all women workers in R&D and QA is $32,736, up almost $4,000 in two years. The percentage gain is about the same, but it doesn't close any gaps.

Salary gains for women

Still, there are bright spots in the data for women. In recent years there have been some salary gains for them. This year's study shows that women did far better than men in terms of salary increases. While 60.8% of the men got no increase last year or an increase of less than 6%, only 50.3% of the women respondents fall into that category.

Nearly 50% of the women respondents reported a salary increase last year of 6% or more, while only 40% of the men did that well.

R&D salary increases by sex

Granted in	1985 (%) Male	1985 (%) Female	1986 (%) Male	1986 (%) Female
Amount				
None	11.6	7.7	16.5	12.8
Less than 2%	3.6	3.5	4.4	3.1
2 through 5%	37.6	31.3	39.6	34.4
6 through 9%	35.8	42.8	30.3	37.8
10 through 13%	8.3	8.9	6.0	6.9
14% or more	3.1	5.8	3.0	4.9

Of the women respondents this year, 60.1% report that they are earning more than $30,000 per year, down from 64.9% last year. Of the men, 88.2% are receiving annual salaries of $30,000 per year or more, up from 84.2% last year.

This and other information about comparable salaries m-f is reflected in an index chart which graphs number of respondents in each salary range in proportion to the number that would be in that range if male-female salary distribution were completely uniform.

Inasmuch as 91.7% of the respondents this year are male, then proportionate distribution would call for there to be 91.7% male and 8.3% female in every salary range. When that is the case, the index is 1.0. In

reality, there is such a disproportionate share of females in the lower salary ranges that it causes the bars for females to run off of that part of the chart.

Years of experience

On the chart showing years of experience by sex, it is easy to see that there is a goodly supply of experienced males in R&D, with 44.1% having more than 20 years' experience. Only 16.3% of the female respondents have that much experience, an obvious factor in the salary sweepstakes.

Why is it that women are so lacking in experience? There are many reasons, including interruption of a career to rear a family, changing jobs when a husband is transferred, and the instability of the lower steps on career ladders.

One of the big limiting factors for women is that a person cannot have long experience while being short on age. Of the female respondents in this year's study, 74.4% are 40 years of age or younger. Only 40.8% of the men are that young.

Understandably, few young females have PhDs. The percentage of females with PhDs is 19.7, down from 20.4 last year. For this year's male respondents, the percentage with PhDs is 28.8, also down this year (from 30.7).

Longevity with a firm tends to be rewarded as a normal consequence of periodic employment reviews or, occasionally, by default. This reward most often takes the form of increases in salary, and the correlation between time with the current employer and salary range is high.

The fact that 5.6% of the male respondents have been with their present employers for more than 30 years helps to explain their domination of the higher income brackets in our survey. This year, only one female respondent reported that she has been with her present employer for more than 30 years.

The many factors that mitigate against long-term employment for females lead us to expect a dominance of females in the short-term groups. And that is exactly what we find in this year's survey. Of this year's female respondents, 57.1% have been with their present employer less than 7 years. Only 37.1% of the males have been with their present employer less than 7 years.

This is a time of rapid change in the R&D industry. Salaries are only one thing that is changing. The male-female balance, demand for workers in one discipline or another, opportunities for high-paid staff members, value attributed to advanced degrees, and R&D's workplace (government, university, or industry) all are undergoing change in varying amounts and at differing rates.

The charts and tables with this article document many of those changes and provide details beyond what is presented in the text. R&D

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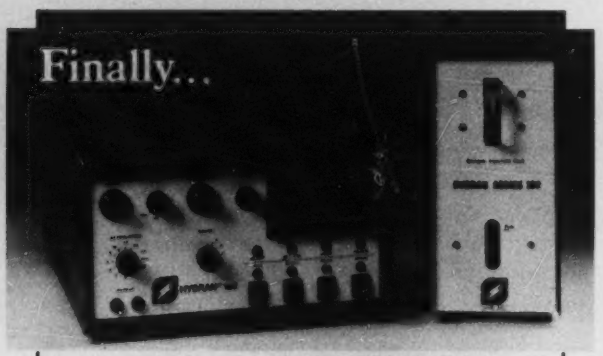

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